

ABSTRACT OF THE DISCLOSURE

This invention relates to a method for etching an organic insulating film used in the production of semiconductor devices. A sample to be etched on which a low dielectric constant organic insulating film is formed is etched by generating a plasma from hydrogen gas and nitrogen gas or ammonia gas, and controlling the gas flow rate and pressure so that the light emission spectral intensity ratio of hydrogen atom and cyan molecule in the plasma comes to a prescribed value. By this method, a low dielectric constant organic insulating film as an insulating film between layers can be etched without using any etch stop layer so that bottom surfaces of trenches and holes for electrical wiring become flat.